

**DIAGNOSTIC AND PROTECTIVE ANTIGEN GENE SEQUENCES OF  
ICHTHYOPHTHIRIUS**

**Abstract of the Invention**

A novel i-antigen protein from *Ichthyophthirius multifiliis* is effective to induce a protective immune response in fish. The invention includes antigenic and membrane-targeting sequences of i-antigen proteins, nucleic acid molecules that encode antigenic or membrane-targeting portions of i-antigen proteins, DNA and protein subunit vaccines, methods of inducing an immune response in fish and methods for detection and characterization of *I. multifiliis*.

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